U. S. Department of Commerce
Malcolm Baldrige
Secretary

National Bureau of Standards
Ernest Ambler, Director

National Bureau of Standards

Certificate of Analysis

Standard Reference Material 160b

Stainless Steel

Cr 18-Ni 12-Mo 2 (AISI 316)

This Standard Reference Material (SRM) is in the form of chips and is intended for use in chemical methods of analysis.

This material also is available in solid form as SRM 1155, primarily for application in optical emission and x-ray spectrochemical methods of analysis.

Element	Percent by Weight[1]	Uncertainty[2]
Carbon[a]	0.044	.003
Manganese[b]	1.64	.01
Phosphorus[c]	0.020	.001
Sulfur[d]	.016	.002
Silicon[e]	.509	.005
Copper[f]	.172	.001
Nickel[g]	12.26	.05
Chromium[h]	18.45	.03
Vanadium[i]	0.047	.001
Molybdenum[j]	2.38	.01
Cobalt[k]	0.101	.005
Nitrogen[l]	.039	.005
Lead[m]	.001	

[a]Direct combustion followed by gravimetric determination.
[b]Neutron activation analysis and spectrophotometric after oxidation with ammonium persulfate.
[c]Spectrophotometric molybdenum-blue method.
[d]Iodometric titration after combustion.
[e]Gravimetric determination after double dehydration with sulfuric acid.
[f]Isotopic dilution analysis.
[g]Gravimetric determination after precipitation with dimethylglyoxime.
[h]Reduction with coulometrically generated ferrous ion.
[i]Potentiometric titration with ferrous ammonium sulfate after nitric acid oxidation and neutron activation analysis.
[j]Gravimetric after precipitation with alpha benzoinoxime and ignition to MoO_3
[k]Neutron activation analysis.
[l]Distillation-titration.
[m]Polarographic determination.

[1]The certified value listed for a constituent is the present best estimate of the "true" value based on the results of the cooperative program for certification.

[2]The estimated uncertainty listed for a constituent is based on judgment and represents an evaluation of the combined effects of method imprecision, possible systematic errors among methods, and material variability. (No attempt was made to derive exact statistical measures of imprecision because several methods were involved in the determination of most constituents.)

Gaithersburg, MD 20899
July 21, 1986
(Revision of Certificates dated
8-4-69 and 8-31-81)

Stanley D. Rasberry, Chief
Office of Standard Reference Materials

(over)

MATERIAL: The material for this standard was prepared at the Duquesne Works, U.S. Steel Corporation, Pittsburgh, Pennsylvania.

The overall direction and coordination of the technical measurements leading to certification were performed under the chairmanship of J.K. Taylor.

The technical and support aspects involved in procurement, preparation, and issuance of this SRM were coordinated through the Office of Standard Reference Materials by R.E. Michaelis and W.P. Reed.